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Via Email

Mr. Joel Singerman  
Acting Remedial Project Manager  
U.S. Environmental Protection Agency  
290 Broadway –20<sup>th</sup> Floor  
New York, NY 10007-1866  
Singerman.Joel@epa.gov

**Re: Wolff-Alport Proposed Plan and EPA's Response to City Comments on the Draft Feasibility Study**

Dear Mr. Singerman:

The City of New York ("City") submits the following comments on the United States Environmental Protection Agency's ("EPA") May 25<sup>th</sup> and June 6<sup>th</sup> emails responding to the City's May 19<sup>th</sup> comments on the Site's Draft Feasibility Study ("Draft FS") for the Wolff-Alport Chemical Company Site ("Site"). This letter also comments EPA's draft Proposed Plan for the Site. The City incorporates by reference its previous submissions relating to the Site and requests that these comments be included in the administrative record for the Site.

**General Comments:**

The City appreciates EPA's consideration and adoption of the City's recommendations regarding addressing sewer contamination, specifically EPA's decision to incorporate sewer flushing between I-4 on Irving Avenue to the Irving Avenue and Halsey Street intersection; the Irving Avenue and Halsey Intersection to the Halsey Street and Wyckoff Avenue intersection; and between C-3 to I-3 on Cooper Street.

However, as discussed more fully below, the City continues to believe that EPA's alternatives analysis is incomplete and significantly underestimates the costs, challenges, and timeframe associated with the preferred alternative and that additional information is needed to inform determinations regarding proposed sewer removals and excavation depths.

### **Comment 103 Response:**

#### **Correlation Data**

In its June 6<sup>th</sup> email, EPA stated that a gamma count rate of 10,000 cpm is considered to be approximately equal to 5pCi/g, which is the preliminary remediation goal (PRG) for Ra-226 and Th-232, and that exceeded this action level after one round of flushing would be the basis for determining the length of sewer line to be removed.

It is unclear whether this is the appropriate correlation because the correlation data showing that 10,000 cpm in any measured geometry or environment was not provided. The basis and justification for using the correlation as criteria to remove soils, sewer lines, and other infrastructure should be provided and substantiated, including, at the very least, the type of instrument, its sensitivity, presumed geometry factors, background contribution to count rate, the variation of composition and properties in anthropogenic materials encountered, and scan count rate sensitivity versus static count efficiency, as well as a definition of the statistical uncertainty in the use of such a method. This is common practice at all site closure actions and is required by MARSSIM for remedial action justifications.

Moreover, the sole reliance on this correlation to determine whether a sewer should be replaced appears to be overly simplified and potentially erroneous, especially in light of the high financial, environmental, safety, and social impacts relating to removal and replacement of sewers. The removal of sewer lines, and other infrastructure based solely on count rate correlation does not adequately determine that a specific concentration of radionuclides of potential concern (ROPC) are present either in, under or near the sewer line. In addition, it has not been demonstrated that a worker in the sewer would or would not exceed any risk or exposure limit based upon use of this criteria. According to the New York City Department of Environmental Protection (“NYCDEP”), workers spend limited time in these sewers. These sewers are small in size and are generally maintained and cleaned with mechanical equipment operated from the surface. Furthermore, manhole maintenance is infrequent and would typically require less than an hour of time spent in the sewer. In contrast, worker time in the sewer and trenches would be extensive if sewer removal and replacement were required. Depending on construction means and methods, workers would be required to spend potentially days to weeks in the trench dug to replace the sewer. Trenchless technologies like lining should be considered as potentially viable options instead.

It should also be noted that the unnecessary removal of the sewer lines and surrounding soils will necessitate significant collateral actions including the removal, or relocation and replacement of other subsurface structures including water mains and other private and public infrastructure. Beyond the obvious economic, environmental, and social impacts of these actions, the resulting health and safety impacts to workers and the public have not been considered and quite possibly may outweigh the small human health risks identified for future and current site receptors under current conditions.

### Contaminated Material in Construction Material

EPA asserts that material in the manhole from sewer pipe I-1 to I-4 exhibit radionuclide concentrations greater than 2,500 pCi/g embedded in the construction materials and that it is conservatively assumed that the entire length of the sewer has contamination in the construction materials. EPA should clarify the basis of this conclusion and whether it was based upon a single clay sewer pipe sample, which would not be adequate to draw such a conclusion, or several samples from sewer materials along the length of the system, as would be more appropriate. Regardless, the existing data does not indicate high levels of embedded contamination in the brick. The highest levels of contamination are at manholes I-1 and I-4, which are located near the contaminant input point of origin, with large variations in both exposure rates and gamma readings in downstream manholes beginning with I-4 and ending at I-6. The remaining manholes showed generally declining radiation levels with distance from the source. The large variations and the presence of outliers, assuming a consistent flow pattern for the system, brings into question whether the radiation readings were accurate and representative, and/or demonstrates that environmental factors influenced the scouring and retention of materials at each section of the sewer system. Due to the large variations, imbedded contamination retention is uncertain and has not been demonstrated given sewer sections of similar materials and widely variable readings even close to the source.

Given the variations in readings, surface contamination of sewer materials should have been investigated to determine how easily embedded material could be removed (e.g. what Decontamination Factors (DF) were reasonably achievable, and how geometry and depth were influencing gamma readings). In addition, the impact of sewer line configuration and flow patterns upon the accumulation of sediment and contamination should also have been investigated. This information could have been obtained during typical field studies and would be valuable for qualifying the data before making remedial action decisions. Further the assumption that radiation readings are derivative of contaminated bedding materials beneath the sewers, without additional data to demonstrate this (such as sewer material shielding factors, flow patterns and investigation of leak sources), is invalid as would be the risk or dose attributed to workers based on this assumption.

### Revised Sewer Approach

As stated above, the City appreciates EPA's reconsideration of flushing and pressure washing technologies to determine decontamination potential before making risk or remediation determinations. The City offers the following steps comments and suggestions to EPA's proposed approach.

#### Step 1-Remove all clay sewer pipes

The City recommends that the section of the pipe identified for removal first be flushed, power washed, or be subject to other exposure reduction methods (i.e, lining the pipe, etc.) prior to a determination that they be removed. This could result in reduced costs, reduced risks, and reduced social impacts while still adequately addressing existing contamination.

#### Step 2 -Sediment removal and flushing

Vacuuming or flushing of sediment should be accompanied by power washing and done in a manner that minimizes the spread of contamination to lower activity areas when possible. This can be accomplished by closing off sections while other sections are vacuumed, collecting material in lower elevations and then removing.

#### Step 3- Perform a gamma survey within the flushed sewer

The City instead recommends that EPA evaluate the radiological impacts of cleaning operations, and the consequential reduction in risk. While gamma readings should be used to identify general area radiation levels, those levels should not be the only factors relied upon without first understanding the correlation of the instrument readings to the actual activity and dose rate levels of ROPC in the sewer environment. As noted in the HHRA, the pathways used to estimate risk include among others, ingestion and inhalation. If flushing and or washing are effective to any measure, certain pathways may be eliminated or significantly reduced as a result of lower activity levels or the lack of removable contamination among other factors. This would then require that exposure and risk to plausible receptors should be evaluated for residual levels under realistic exposure durations and conditions.

#### Step 4-If gamma counts are still greater than twice those in background sewers those parts of the sewer line would be removed

As indicated above, the City believes it is not justifiable to remove sewer lines exceeding twice background based on an unqualified gamma count rate limit leading to an estimated risk to receptors. The HHRA demonstrated short duration exposures for utility workers justify the imposition of institutional controls to ensure compliance with dose and risk criteria. The comparative analysis of both the proposed alternative (removal) and the prospective methodologies (decontamination) should be performed to affirm or invalidate the need for institutional controls, removal, or any other such actions at the levels proposed.

#### Step 5-Sampling of bedding materials to determine if they are contaminated

Although sampling from exposed excavation locations is prudent, it is important to understand the limitations of the data. While “hot spots” may occur, elevated measurement locations are not indicative of the entire system and should be handled as described in MARSSIM for evaluation of the survey unit as a whole. In addition, the contribution to calculated dose or risk from contamination below the sewer pipes should be evaluated in light of the pipe shielding and spatial extent.

#### Step 6-Cost Estimating

The City repeats its comment that EPA’s cost estimates significantly under-estimates the costs associated with sewer removal. First, as previously stated in the City’s comments on the draft FS, utility removal and replacement will likely be required. At the very least, sewer removal and replacement will require the replacement of corresponding water mains due to the water main’s structural reliance on the sewer system. In addition, and not raised in our May 19<sup>th</sup> letter, shallow private utilities would also need to be removed or offset due to their being within the influence zone of the sewer trench, rendering them unsupported during the sewer trenching.

Next, EPA assumes that water from excavation dewatering would be used for dust suppression. However, water removed from these excavations will need to be analyzed prior to any on-site reuse. Since there will not be an active on-site laboratory, this approach would not be undertaken due to work site delays. Furthermore, even if this approach was feasible, the Proposed Plan does not identify the method or costs of collecting or spraying the excavation water for dust suppression.

Furthermore, an additional cost item that EPA should consider when evaluating power washing technology is the cost for repeat washes of the sewer line. This would be important for evaluating power washing in light of other alternatives if reduced but realized DFs are achieved after the initial DF for power washing.

#### **Comment 104 Response:**

EPA states that sewer line and sub base removal in any portion of the sewer system is being undertaken to achieve the RAOs for the Site, which is necessary to reduce or eliminate the human exposure threat by exposure to COCs above PRGs. In the case of the sewer system, it was stated that the PRGs are based on a correlation of 10,000 cpm being equivalent to 5 pCi/g of Ra and Th. However, the soil under the sewer pipe must be evaluated under a different use scenarios. As stated previously, the gamma correlation and its applicability for risk or dose estimates in this setting, under plausible future use scenarios, has not been shown nor has twice the sewer system background count rate been shown to equate to any specific dose or risk. Sewer system shielding for sub-base contamination that consider factors such as distance from source activity (depth in soil, etc.), moisture effects, receptor duration, or other factors that are identified and evaluated during RESRAD, have not been evaluated in determining a PRG for this environment.

EPA also states that sub-base materials would be removed in 6 inch increments to an infinite depth if so necessary. The City requests that EPA provide support for this depth, since it is likely that surface soils or ground cover would shield any external dose from residual soil concentrations of contaminants of concern (COC) to surface receptors. EPA should provide an exposure calculation for soil contaminants at incremental depths to show the concentrations of COCs in a soil column that would require removal under future use scenarios and assumed cover materials to meet PRGs.

#### **Comment 105 Response**

As explained in the City's May 19<sup>th</sup> letter, the City does not believe that Alternative 4's proposal to excavate to a depth of 20 feet in the right of way along Irving Avenue is necessary, and instead proposed limiting such excavation to 5 feet. In light of EPA's revised approach of limiting removal and replacement of the sewer line on Irving Avenue to between I-1 and I-4, as explained more fully below, the City proposes that EPA limit excavation in this area to the depth that is required to address sewer line contamination.

The City revises Comment 105 to reflect EPA's revised approach to addressing the sewer contamination, which now only requires the removal and replacement of the sewer line from

locations I-1 to I-4. Under EPA's revised approach, a portion of the area along Irving Avenue identified as requiring the removal of soil to a depth of 20 feet would also be subject to sewer removal and replacement. The City's May 19<sup>th</sup> comments on the draft FS advocated limiting excavations in this area to a depth of 5 feet instead of the 20 feet. However, since the sewer line between I-1 and I-4 will be removed, the City believes a more pragmatic approach is to excavate along the length of this sewer line to a depth that is required to address the sewer line contamination. In addition, the sewer line can be considered the demarcation depth of the excavation in this area because, based on the City's experience in this area, there is no realistic future use scenarios that would require access to the soil below this area.

For the remaining areas that are proposed for 20 foot excavation but do not overlap with sewer removal and replacement, the City still recommends limiting excavation to five feet. The depth of excavation around I-1 will need to be determined when more information is available regarding the exact location of the end of the sewer line. While location I-1 is shown on the various site maps in the draft FS, EPA's consultant has stated that it could not locate this manhole during its site investigation and has extrapolated its location from information provided in the Louis Berger & Associates 2010 site investigation report. *See* draft FS, Figure 3-1. The site maps in the draft FS indicate that this sewer line overlaps with the area identified as requiring excavation to a depth of 20 feet. *See* draft FS at Figure 3-5. Where the sewer line overlaps with the area proposed for 20 foot excavation along Irving Avenue, that area should be excavated to the depth needed to replace the sewer line. However, any area that is identified for 20 foot excavation discovered to not require sewer line removal should be limited to 5 feet of excavation.

The City anticipates that the removal of the sewer line could require excavating to a depth of between 8 and 12 feet. However, for all the remaining area identified for 20 feet of excavation where there is no underlying sewer line removal and the NE section of Moffat Street, the City is restating its request that the depth of the excavation in these areas be limited to 5 feet for the reasons previously provided in the City's comments of May 19<sup>th</sup> comments, namely the disruption to existing utilities, the underpinning of existing buildings and shoring requirements.

The City feels that these limitations are appropriate because while EPA states that shallower excavation depths decrease the level of protection of human health and the environment, this statement misrepresents the objectives of the CERCLA process. The goal of remediation is not to return a site to pristine conditions, but rather to reduce or eliminate potential exposures to COCs for exposed receptors below PRGs. PRGs are based on risk and/or dose ranges and limits deemed acceptable. Therefore, in the context of PRGs and RAOs, unless an assessment of exposure to a diminished contaminant depth, area, and concentration is evaluated, it is not accurate to state that "decreasing excavation depth decreases the level of protection and requires additional ICs" because while protection may be less against any exposure, some amount of remediation may reduce any exposure to levels below RAOs and regulatory risk or dose limits that would obviate the need for institutional controls in the right of way. As stated in the HHRA, risk assessments considered the spatial extent of the contaminants (i.e., area and volume) on the receptors. EPA should therefore assess potential risks of exposure to a diminished contaminant source resulting from shallower excavations, i.e. to sewer removal depths in those areas where warranted and in the other areas to a depth of 5 feet as described above. This would require

reducing the depth, area, and/or concentration (as in the case of diminishing concentrations with depth), as a result of excavation or isolation (cover). This will likely show that at some point during remediation, the amount of residual contamination will be small enough that it will not result in a potential exposure above the PRGs and therefore will meet the site RAOs.

In light of the acknowledgement in the Proposed Plan regarding the increased difficulty presented by the excavation requirements of Alternative 4, the City is restating its request that the EPA limit the excavation depth along Irving Avenue and the Northeast section of Moffat Street.

### **Comment 107 Response**

The City repeats its request that EPA include in its Alternative 4 analysis the additional costs identified in the City's draft FS comments associated with the proposed work. The City and its agencies have extensive experience and expertise in street and sidewalk excavations, sewer cleaning, and sewer replacement, and are very familiar with the nature of the costs associated with this type of construction work. EPA should also include costs associated with community disruptions and impacts from the proposed construction work. Finally, EPA should take into account the costs of additional work that will be needed for the FSS (Comment 10 response), including the statistics based sampling required by MARRSIM.

### ***Conclusion***

The City appreciates the opportunity to submit these comments, and looks forward to continuing to work with EPA and others to address historic contamination at the Site.

Sincerely yours,

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/s/

Haley Stein  
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cc: Jean Regna